Ohio Street and Inner Harbor Infrastructure Improvements
PIN No. 5760.26
Green Infrastructure Design Summary
May 28, 2013

This memo is being provided to summarize the green infrastructure elements used in the Ohio Street and Inner Harbor Infrastructure Improvement project. The goals of the project were to incorporate green infrastructure to meet NYSDEC standards for water quality. The current design is in compliance with NYSDEC regulations and any additional green infrastructure beyond what is required by NYSDEC would be considered a betterment and would not be eligible for federal reimbursement.

Coordinated efforts among stakeholders in the project, including the Buffalo Sewer Authority, led to the use of the following green infrastructure elements as shown in the current plans:

1. Reduction in the number of travel lanes resulting in a reduction in the road surface area of more than 30 percent.
2. Implementation of porous pavement for the shared use path along the west side for a majority of the length of project.
3. Implementation of porous pavement for parking lanes along the west side on the north end of the project.
4. Creation of a 5 to 13 foot wide green snow storage area between the road and the path/sidewalk on the east and west sides for the entire length of the project. This area will be constructed of 12 inches of topsoil which equates to 5,000 cubic yards.
5. Over 260 trees will be planted throughout the length of the project with other areas landscaping.
6. Removing and disposing of thousands of tons of soil that potentially could be contaminated.
7. All new drainage structures that catch runoff from the road surface contain a 2' deep sump that collects debris and sediments prior to entering the main storm sewer line. These structures also have a hood at the outlet the prevent floatables from entering the main storm sewer line.
8. For a 10-year design storm, implementation of the green infrastructure elements as shown in the plans would reduce stormwater volume by 162,000 gallons (0.5 acre-ft) and reduce the stormwater peak flow by 3200 gpm (7 cfs).

Documentation of these coordinated efforts and supporting calculations are provided in the attachments to this memo. These attachments include:

- Minutes from a meeting where green infrastructure was discussed with the representatives of the Buffalo Sewer Authority, Erie Canal Harbor Development Corporation, and other departments at the City of Buffalo.
- Calculations documenting the 30% reduction in impervious area.
- A conference log showing NYS DEC concurrence with the definition of porous pavement as a permeable surface for calculation of water quality volume and runoff reduction volumes.
- Design drawings showing potential locations for green infrastructure elements.

The existing corridor consists of 4 travel lanes of impervious surface throughout the project length. Very little green space exists within the highway boundary. The proposed road section reduces the number of lanes from 4 to 2 north of the Ohio Street Lift Bridge and reduces the number of lanes from 4 to 3 south of the Ohio Street Lift Bridge. The project also includes the addition of green areas on both the west and east side consisting of 12" of topsoil, grass and plantings. A porous paved shared use path and parking lane will be constructed on the west side. With these changes the percentage of impervious area from existing conditions to post construction conditions is reduced by more than 30%.

The design team did look at including other green infrastructure elements, but for cost, technical and maintenance reasons these were not implemented. For example, the use of porous pavement in the travel lanes was discussed, but the increased cost combined with concerns about the use of this material along with maintenance concerns on a high traffic roadway removed this option from consideration. Based on soil classifications obtained from the soil boring program, the permeability characteristics of in-situ soils would make them unsuitable for use with infiltration elements such as bioretention areas.

A meeting was conducted with NYSDEC regarding the Ohio Street Improvement Project and through a review of the NYSDEC regulations for redevelopment projects it was determined that water quality controls were not required for this project. That is not to say that water quality controls for storm water were ignored for this project as a reduction of the impervious area will improve water quality. A follow up meeting was conducted with the Buffalo Sewer Authority and they agreed with our assessment that the design presented met their needs.